



**PACKAGE MATERIAL DECLARATION DATASHEET (PMDD)**

<b>Cypress Package Code</b>	BK	<b>Body Size (mil/mm)</b>	7x8.5x1.2 mm
<b>Package Weight – Site 1</b>	B1: 142.0404 mg B2: 141.1439	<b>Package Weight – Site 2</b>	109.2278 mg

**SUMMARY**

The 48 - FBGA Pb-Free package is compliant to RoHS. Cypress Ordering Part Numbers containing an “X” (e.g. CY7C1328G-133AXI, CY2308SXC-1HT) meet the Directive 2002/95/EC (RoHS) requirement.

**ASSEMBLY Site 1 – Package Qualification Reports # 012809, 053702, 120612 (See Note 1)**

**I. DECLARATION OF PACKAGED UNITS**

**A. BANNED SUBSTANCES**

Materials from Level A of the EIA/JIG/JGPSSI/EICTA Material Composition Declaration Guide and EU RoHS. Listed in the table below are materials that are neither contained nor intentionally added to this product.

<b>Substances / Compounds</b>	<b>Weight by mg</b>	<b>PPM</b>	<b>Analysis Report (Note 2)</b>
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BK48B-G
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	0	< 5.0	
Mercury and Mercury Compounds	0	< 5.0	
Polybrominated Biphenyls (PBB)	0	< 5.0	
Polybrominated Diphenylethers (PBDE)	0	< 5.0	
Asbestos	0	0	As per MSDS
Azo colorants	0	0	As per MSDS
Ozone Depleting Substances	0	0	As per MSDS
Polychlorinated Biphenyls (PCBs)	0	0	As per MSDS
Polychlorinated Napthalenes	0	0	As per MSDS
Radioactive Substances	0	0	As per MSDS
Shortchain Chlorinated Paraffins	0	0	As per MSDS
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	As per MSDS
Tributyl Tin Oxide (TBTO)	0	0	As per MSDS
Formaldehyde	0	0	As per MSDS

Note 1: Qualification reports are available at [www.cypress.com](http://www.cypress.com). Access them by doing a Search on the Report #.

Note 2: Report available from Cypress Sales Offices or Distributors.

Note 3: Materials/substances not declared in Section I-A and I-B of this document are considered “non-existent in the product” or a natural impurity. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor PMDD's are calculated using MSDS, Material Analysis Reports and Cypress Assembly site information.

Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

**B1. MATERIAL COMPOSITION (Note 3)  
Using Gold wire material**

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	SiO <sub>2</sub>	60676-86-0	5.2635	11.0000%	37,056	3.7056
		Acrylic	Proprietary, 29690-82-2	4.7850	10.0000%	33,688	3.3688
		Epoxy	68541-56-0, 25068-38-6	3.8280	8.0000%	26,950	2.6950
		Bisphenol	13676-54-5	7.1775	15.0000%	50,532	5.0532
		Triazol	25722-66-1	8.3738	17.5000%	58,953	5.8953
		Cu	7440-50-8	17.4174	36.4000%	122,623	12.2623
		Ni	7440-02-0	0.7178	1.5000%	5,053	0.5053
Solder Ball	External Plating	Au	7440-57-5	0.2871	0.6000%	2,021	0.2021
		Sn	7440-31-5	4.8037	95.5000%	33,819	3.3819
		Ag	7440-22-4	0.2012	4.0000%	1,417	0.1417
Die Attach	Adhesive	Cu	7440-50-8	0.0252	0.5000%	177	0.0177
		Silver	7440-22-4	11.3756	76.5000%	80,087	8.0087
		Epoxy Resin	Trade Secret	0.8179	5.5000%	5,758	0.5758
		Functionalized Ester	Trade Secret	0.8179	5.5000%	5,758	0.5758
Die	Circuit	Diester	Trade Secret	1.8588	12.5000%	13,086	1.3086
		Si	7440-21-3	13.3300	100.0000%	93,847	9.3847
Wire	Interconnect	Au	7440-57-5	1.6800	100.0000%	11,828	1.1828
Mold Compound	Encapsulation	Amorphous Silica	Proprietary	50.3880	85.0000%	354,745	35.4745
		Epoxy resin	Proprietary	2.9640	5.0000%	20,867	2.0867
		Carbon black	1333-86-4	0.1778	0.3000%	1,252	0.1252
		Antimony Trioxide	1309-64-4	5.7502	9.7000%	40,483	4.0483

**Package Weight (mg):** **142.0404**
**% Total:** **100.0000**

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

**B2. MATERIAL COMPOSITION (Note 3)  
Using Copper-Palladium wire material**

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	SiO <sub>2</sub>	60676-86-0	5.2635	11.0000%	37,292	3.7292%
		Acrylic	Proprietary, 29690-82-2	4.7850	10.0000%	33,902	3.3902%
		Epoxy	68541-56-0, 25068-38-6	3.8280	8.0000%	27,121	2.7121%
		Bisphenol	13676-54-5	7.1775	15.0000%	50,852	5.0852%
		Triazol	25722-66-1	8.3738	17.5000%	59,328	5.9328%
		Cu	7440-50-8	17.4174	36.4000%	123,402	12.3402%
		Ni	7440-02-0	0.7178	1.5000%	5,086	0.5086%
		Au	7440-57-5	0.2871	0.6000%	2,034	0.2034%
Solder Ball	External Plating	Sn	7440-31-5	4.8037	95.5000%	34,034	3.4034%
		Ag	7440-22-4	0.2012	4.0000%	1,424	0.1424%
		Cu	7440-50-8	0.0252	0.5000%	178	0.0178%
Die Attach	Adhesive	Silica fused	60676-86-0	7.4336	49.9899%	52,667	5.2667%
		Epoxy Resin	-----	1.0779	7.2485%	7,637	0.7637%
		Acrylate monomer	-----	1.0779	7.2485%	7,637	0.7637%
		Bismaleimide monomer	-----	4.5795	30.7965%	32,446	3.2446%
		Acrylic resin	-----	0.7014	4.7166%	4,969	0.4969%
Die	Circuit	Si	7440-21-3	13.3300	100.0000%	94,443	9.4443%
Wire	Interconnect	Copper	7440-50-8	0.7627	97.3626%	5,404	0.5404%
		Palladium	7440-05-3	0.0207	2.6374%	147	0.0147%
Mold Compound	Encapsulation	Silica	60676-86-0	50.3880	85.0000%	356,997	35.6997%
		Epoxy resin	-----	4.7424	8.0000%	33,600	3.3600%
		Carbon black	1333-86-4	0.1778	0.3000%	1,260	0.1260%
		Phenol Resin	-----	3.9718	6.7000%	28,140	2.8140%

**Package Weight (mg):** **141.1439**

**% Total:** **100.0000**

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Note 3: Materials/substances not declared in Section I-A and I-B of this document are considered "non-existent in the product" or a natural impurity. In order to report exactly 100% material composition, some numbers were rounded to the nearest 0.01 percent. Cypress Semiconductor PMDD's are calculated using MSDS, Material Analysis Reports and Cypress Assembly site information.

Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

## **II. DECLARATION OF PACKAGING / INDIRECT MATERIALS**

Type	Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
Tape & Reel	Cover tape	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-COVT-R
	Carrier tape	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-TRAY-R
Others	Shielding bag	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-SBAG -R
	Moisture Barrier bag	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-MBBG-R
	Protective Band	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-PROB-R
	Shipping and Inner Box	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-ABOX-R

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

**ASSEMBLY Site 1 – Package Qualification Reports # 120610 (See Note 1)**
**I. DECLARATION OF PACKAGED UNITS**
**A. BANNED SUBSTANCES**

Materials from Level A of the EIA/JIG/JGPSSI/EICTA Material Composition Declaration Guide and EU RoHS. Listed in the table below are materials that are neither contained nor intentionally added to this product.

Substances / Compounds	Weight by mg	PPM	Analysis Report (Note 2)
Cadmium and Cadmium Compounds	0	< 5.0	CoA-BK48B-RA
Hexavalent Chromium and its Compounds	0	< 5.0	
Lead and Lead Compounds	0	< 5.0	
Mercury and Mercury Compounds	0	< 5.0	
Polybrominated Biphenyls (PBB)	0	< 5.0	
Polybrominated Diphenylethers (PBDE)	0	< 5.0	
Asbestos	0	0	As per MSDS
Azo colorants	0	0	As per MSDS
Ozone Depleting Substances	0	0	As per MSDS
Polychlorinated Biphenyls (PCBs)	0	0	As per MSDS
Polychlorinated Napthalenes	0	0	As per MSDS
Radioactive Substances	0	0	As per MSDS
Shortchain Chlorinated Paraffins	0	0	As per MSDS
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	0	0	As per MSDS
Tributyl Tin Oxide (TBTO)	0	0	As per MSDS
Formaldehyde	0	0	As per MSDS

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

**B. MATERIAL COMPOSITION (Note 3)  
Using Copper-Palladium wire material**

Material	Purpose of Use	Substance Composition	CAS Number	Weight by mg	% weight of substance per Homogenous material	PPM	% weight of substance per package
Substrate	Base Material	Cured Resin	-----	9.2244	28.0000%	84451	8.4451%
		Glass Fabrics	-----	7.2477	22.0000%	66354	6.6354%
		Copper Foil	-----	9.8832	30.0000%	90482	9.0482%
		Diethylene Glycol Monoethyl Ether Acetate	-----	1.6472	5.0000%	15080	1.5080%
		Acetophenone Derivative	-----	1.6472	5.0000%	15080	1.5080%
		Silica Crystalline	-----	1.6472	5.0000%	15080	1.5080%
		Solvent naptha	-----	1.6472	5.0000%	15080	1.5080%
Solder Ball	External Plating	Sn	7440-31-5	3.2450	98.5000%	29709	2.9709%
		Ag	7440-22-4	0.0329	1.0000%	301	0.0301%
		Cu	7440-50-8	0.0165	0.5000%	152	0.0152%
Die Attach	Adhesive	Ag	7440-22-4	7.4125	75.0000%	67863	6.7863%
		Bismaleimide	-----	1.7296	17.5000%	15835	1.5835%
		Polymer/Synthetic Resin	-----	0.4942	5.0000%	4524	0.4524%
		Additive	-----	0.2471	2.5000%	2262	0.2262%
Die	Circuit	Si	7440-21-3	5.4907	100.0000%	50268	5.0268%
Wire	Interconnect	Cu	7440-50-8	0.5070	98.9948%	4642	0.4642%
		Pd	7440-05-3	0.0051	1.0052%	47	0.0047%
Mold Compound	Encapsulation	Silica Fused	60676-86-0	49.1087	86.0000%	449599	44.9599%
		Epoxy resin	-----	3.7117	6.5000%	33981	3.3981%
		Phenolic resin	-----	1.7131	3.0000%	15684	1.5684%
		Melamine Cyanurate	-----	2.2841	4.0000%	20912	2.0912%
		Carbon black pigment	1333-86-4	0.2855	0.5000%	2614	0.2614%

**Package Weight (mg):** **109.2278**

**% Total:** **100.0000**

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

## **II. DECLARATION OF PACKAGING / INDIRECT MATERIALS**

Type	Material	Lead PPM	Cadmium PPM	Cr VI PPM	Mercury PPM	PBB PPM	PBDE PPM	Analysis Report (Note2)
Tape & Reel	Cover tape	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-COVT-R
	Carrier tape	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-CART-R
	Plastic Reel	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-PLRL-R
Tray	Tray	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-TRAY-R
Others	Shielding bag	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-SBAG -R
	Moisture Barrier bag	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-MBBG-R
	Protective Band	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-PROB-R
	Shipping and Inner Box	< 5.0	< 5.0	< 5.0	< 5.0	<5.0	<5.0	CoA-ABOX-R

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Note 4: Actual testing performed on package family basis. Engineering calculations were applied to derive individual package data.

## Document History Page

Document Title: 48 - FBGA 7x8.5x1.2mm Pb-Free PMDD  
 Document Number: 001-06013.doc

Rev.	ECN No.	Orig. of Change	Description of Change
**	412269	YXP	New specification.
*A	414343	YXP	Revised package weight based on the new material composition. Revised section I-B to reflect direct materials from QTP 053702.
*B	2622625	HLR DCon	Changed Cypress Logo. Revised the material composition table. Completed the RoHS substance on Indirect Material table. Replaced CML with WEB in distribution list.
*C	3473291	HLR	Updated the material composition table to reflect 4 decimal places on values
*D	3612426	UDR	Added B2 on Site 1 with reference QTP # 120612. Added PMDD Site 2 with reference QTP # 120610.

Distribution: WEB

Posting: None

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